



September 21, 2001

Dr. Michael D. Shelby  
Director  
NTP Center for the Evaluation of  
Risks to Human Reproduction  
79 T.W. Alexander Drive  
Building 4401, Room 102  
P.O. Box 12233, EC-32  
Research Triangle Park, NC 27709

Dear Dr. Shelby:

I am responding to the Federal Register notice dated August 18, 2001. I am Director of the Institute for Research and Technical Assistance (IRTA), a nonprofit organization established in 1989 to assist companies in adopting low- and non-solvent technologies. IRTA has worked with hundreds of companies to help them identify, test and implement alternatives in cleaning, coating, paint stripping and adhesives applications.

My comments fall into three categories. First, I would like to provide information on n-propyl bromide (nPB) use, emissions and exposure. Second, I would like to nominate a scientist to serve on the expert panel that will be established to evaluate the toxicity of nPB and 2-bromopropane (2-BP). Third, I would like to request that you consider evaluating two other chemicals, parachlorobenzotrifluoride and 1,2-trans-dichloroethylene, in a future panel. I expand on each of these areas below.

#### nPB Use and Emissions

IRTA has been working with EPA's Design for the Environment Program for the last three years on a project that focuses on alternatives in adhesives used in foam fabrication, upholstered furniture manufacture and mattress manufacture. IRTA visited many companies in various parts of the country to determine what adhesives they were using and to collect information for a cost and performance evaluation. The project was prompted by the fact that the Occupational Safety and Health Administration (OSHA) had finalized a regulation on methylene chloride (METH) and it was obvious that many companies would convert away from METH-based adhesives.

The alternatives to METH adhesives used in foam fabrication are water-based adhesives, acetone and acetone blend adhesives and nPB-based adhesives. Adhesives based on nPB have not been used in upholstered furniture and mattress manufacturing. IRTA has also worked for many years with the industries that use adhesives to laminate various

materials to medium density fiberboard or other substrates. nPB adhesives are not used in these applications to our knowledge.

In the foam fabrication industry, many companies, particularly small and medium sized ones, have converted from METH to nPB adhesives. The adhesives are sprayed, often without control enclosures or any ventilation, onto the foam. This industry has the potential for very high exposure.

I am enclosing three draft reports recently prepared for the EPA adhesives project. One of these is a cost and performance evaluation. It focuses on several plants that have converted or plan to convert from one adhesive type to another. The second document, prepared by the University of Tennessee's (UT's) Center for Clean Products and Clean Technologies, is a risk screening analysis performed by UT, IRTA and EPA. The third document is an executive summary that reviews the findings of the cost/performance and risk screening analysis.

The risk screening analysis indicates that the exposure to nPB (and other adhesive solvents like METH) is very high. We developed scenarios based on our observations during the field visits. Representatives from NIOSH and OSHA were regular participants in the project. We made an effort to carefully consider exposure to workers and the community surrounding facilities that use adhesives. The project reports may be useful to you in estimating exposure to nPB and 2-BP.

IRTA has worked for many years with companies to assist them in converting away from cleaning solvents in vapor degreasing, cold cleaning, repair and maintenance cleaning, handwipe cleaning and aerosol cleaning. nPB is being used widely in vapor degreasing, handwipe cleaning and in aerosol cleaning formulations. There are alternatives to nPB in these applications and no company needs to use the chemical for cleaning.

In vapor degreasing, there are some limited controls on nPB because there are cooling coils at the top of the vapor degreaser. Nevertheless, companies generally misuse vapor degreasers and exposure ends up being higher than expected for this reason. In handwipe operations, workers apply nPB with rags to parts or simply flush parts with unheated nPB. Because of nPB's high vapor pressure, exposure in these cases is extremely high. nPB is being marketed aggressively in aerosol cleaning products and exposure, as the can is vented, is obviously high.

IRTA worked with one company that had used 1,1,1-trichloroethane (TCA) for vapor degreasing. Like other companies, this company converted from TCA to nPB when the cleaning NESHAP became effective. The NESHAP covers halogenated solvents like TCA but does not apply to nPB. The company worked with IRTA to try to identify a water cleaning process that was effective for their parts. The company provides a precision contract cleaning service to the aerospace, semiconductor and medical industry. The parts they clean have stringent cleanliness standards. IRTA helped the company convert to a water cleaning process. I am enclosing a paper that describes this case study conversion.

IRTA has converted numerous companies away from solvents of all kinds in many different types of cleaning operations to water-based cleaners. I can state unequivocally that there is no company that needs to use nPB in a cleaning operation.

Some of the nPB used in the U.S. is apparently imported from China. The concentration of 2-BP in this material is much higher than the concentration in domestically produced nPB. 2-BP has been demonstrated to be a reproductive toxin in Korean workers so there is greater concern for the workers using the imported nPB. This nPB is used by many adhesive formulators and distributors and by a number of cleaning solvent formulators.

#### Nomination of Panel Member

I would like to nominate Dr. Adam Finkel to serve on the panel you are assembling to evaluate nPB and 2-BP. Dr. Finkel was involved with us on the EPA project described earlier and he is currently with OSHA in Colorado. He nominated nPB and 2-BP for reproductive and carcinogenicity testing when it was apparent that the chemical was being adopted widely for adhesive and cleaning application use. He has impressive experience in risk assessment and regulatory toxicology. I am enclosing Dr. Finkel's curriculum vitae for your consideration.

#### Nomination of Other Chemical Substances

Over the last few years, IRTA has become very concerned about the increasingly widespread use of parachlorobenzotrifluoride (PCBTF). The structure is a benzene ring with a chlorine substituent which signals it could have high toxicity. PCBTF has not been tested for chronic toxicity. Occidental Chemical was the sole domestic producer of the chemical which was used in the past almost exclusively as an intermediate. Occidental stopped production some time ago and the material that is being used now is imported and likely less pure. I am concerned that there may be free fluorine in some of the material which could cause extensive problems if it formed HF.

The chemical is relatively new to the market and was exempted from VOC regulations by EPA a number of years ago. When chemicals are deemed exempt from VOC regulations, their use increases dramatically. PCBTF is now being used by autobody shops in their coatings. It is also being used extensively in California in parts cleaning equipment used in auto repair shops.

IRTA is also concerned about the use of another chemical, 1,2-trans-dichloroethylene (DCE). This chemical is combined with so-called designer solvents which include HCFC-225, HFC-43-10 and the HFEs, in vapor degreasing and aerosol cleaning formulations. These latter chemicals were developed as alternatives to the high ozone depleting substances. The HCFC, the HFC and the HFEs are not aggressive enough solvents for removing most contaminants so the formulators offer them in combination with DCE or with DCE and alcohols. The manufacturer of DCE has submitted a petition

to EPA to exempt the chemical from VOC regulations. If this were to happen, the chemical would have even more widespread use.

DCE has not been tested for chronic toxicity. It is structurally similar to vinyl chloride, an established human carcinogen, and to trichloroethylene and perchloroethylene which are animal carcinogens. When the chemical blends containing DCE are used, particularly in aerosol applications, exposure is quite high.

It would be very helpful if a committee would evaluate the existing toxicological information to determine if chronic toxicity testing of PCBTF and DCE were warranted.

In summary then, IRTA believes that the use of nPB poses a very high risk to workers and community members surrounding facilities where it is used. IRTA has assisted companies in adopting alternatives in all applications where nPB might be used and the chemical does not need to be used. IRTA is nominating Dr. Adam Finkel for membership on the expert panel that is being formed to evaluate nPB and 2-BP. IRTA also suggests that you consider a future evaluation of two other chemicals, PCBTF and DCE, that have widespread use and likely high exposure.

I appreciate the opportunity to comment on the formation and activities of the panel. If you have questions or would like more detail on any of the applications described here, please call me or have other panel members call me at (310) 453-0450.

Sincerely,

A handwritten signature in black ink, appearing to read "Katy Wolf". The signature is fluid and cursive, with the first name "Katy" and last name "Wolf" clearly distinguishable.

Katy Wolf, Ph.D.  
Executive Director

Enclosures